

OBITUARY—ALEC FRANCIS TRENDALL 1928–2013



Alec Trendall ‘...cheese-maker extraordinaire’ (photo P E Playford)

Alec Trendall died peacefully at home in Springhaven, near Denmark, after a short illness. The announcement placed in the West Australian newspaper by his family aptly describes him: ‘He was a gentle man with an amazing intellect, who was a respected geologist, cheese maker extraordinaire and an eternal explorer and seeker of knowledge.’

Alec Trendall was born in Enfield, Middlesex, UK, on 8 December 1928, the youngest of a family of four, two girls and two boys. Alec’s father worked at the Royal Arsenal at Enfield Lock and moved to the Rifle Factory at Ishapore, Calcutta, to work when the post-World War I depression hit the UK. In 1925 the family resettled in Enfield, but 10 years later his parents and the two boys returned to Ishapore and the two girls remained in the UK to continue their education under grandparental guidance. In India Alec and his brother attended St Joseph’s College, North Point, a boarding school in Darjeeling. The scenic Himalayan environment there stimulated a lifelong empathy with mountains, wild and remote environments, and most importantly, rocks and geology.

Returning to the UK in 1937 he completed secondary education at Luton Grammar School, where his enthusiasm for geology was reinforced and encouraged by his geography master. In 1946 Alec won a Royal Scholarship to the Imperial College of Science and

Technology in London, where he graduated BSc (Hons), ARCS in 1949.

Imperial College was a stimulating place to be. H H Read (the respected international figurehead of the ‘granitisation’ movement) was head of the department; John Sutton and Janet Watson were working on their PhDs on the Lewisian rocks of Scotland; the structural geologist Wally Pitcher was a demonstrator. But the person who was to have the greatest influence on Alec’s career was Robert Shackleton, who arrived fresh from mapping in Fiji in 1948 to teach a unit in petrology—although the essential message of this course was that the best way to understand the Earth was to get out into the field, make good maps, study the rocks in as much detail as possible, and interpret the evidence on its own merits, rather than rely on received opinion. Shackleton supervised Alec’s Honours thesis, which involved the complete remapping of Achill Island, off the west coast of County Mayo.

In 1949 Robert Shackleton was appointed Professor of Geology at the University of Liverpool, and invited Alec to join him as a PhD student: Alec jumped at the chance. His research topic was ‘The origin of albite gneisses’ in a belt of low-grade Dalradian metasedimentary rocks in the Scottish Highlands and Achill Island.

In early 1951 Duncan Carse wrote to Robert Shackleton—a distant cousin of the Antarctic explorer Sir Ernest Shackleton—asking whether he knew of any young geologist, such as a PhD student, who might volunteer to join a six-man expedition to South Georgia

that he was organising to survey this major sub-Antarctic island. Shackleton discussed Carse's letter with Alec who was instantly attracted by the opportunity: Carse and Alec met in London, appropriately on board Scott's ship 'Discovery'! So began Alec's association with South Georgia geology.

Carse led three South Georgia Surveys—1951-52, 1953-54 and 1955-56—that are documented in detail in Alec's book *Putting South Georgia on the map* published in 2011. Alec was a member of the first two expeditions. On the 1951-52 expedition, 'Alec...disappeared down a hole in the snow!'—actually a bergschrund—and sustained a severely dislocated left knee that necessitated his being sent back to England for specialist treatment. In Alec's own words, written 61 years after the event: 'The unknown time between falling into the hole and finally emerging at the top marked a dividing point in Alec's life. He had escaped death on the first day of January 1952 by a chance of probably one in billions (how can it be calculated?). He had gone down overconfident, naïve, and too quick to ignore the advice of others. Although he didn't know it, his experiences during the rest of 1952 were to leave him a different person.'

During his recuperation Carse asked whether he was interested in going to South Georgia for the 1952-53 season. Alec declined because: (i) his surgeons advised against strenuous use of his left leg for a year; (ii) he needed to write up not only his PhD thesis but also the results of the 1951-52 field work; (iii) he had been offered a lectureship at Keele University; and (iv) in hospital he had met Kathleen Waldon, a nurse who had played a major part in his rehabilitation, and who he planned to marry. However, South Georgia continued to call him and Alec accepted Carse's invitation to join the 1953-54 expedition while at Keele and sailed south just two months after his marriage.

Alec's geological work was published in two FIDS (Falkland Island Dependencies Survey) Scientific Reports, *The geology of South Georgia I and II*. The British Antarctic Survey (the successor to FIDS) subsequently published a detailed map of the island in 1987, the work involving 11 geologists over eight years. The accompanying text stated 'The memoir is dedicated to Alec Trendall, who showed us all the way', a testament to the detailed observations he had made on the two expeditions he took part in.

On his return from South Georgia, and after writing up his geological results, Alec joined the Geological Survey of Uganda (at that time one of the Colonial Geological Surveys) in 1954 as a field geologist. Most of his geological work was in the Karamoja District in northeast Uganda, a sparsely inhabited plateau of arid savannah about 1000 m above sea-level, part of the Mozambique Belt, with scattered Cenozoic volcanic mountains rising to 3000 m. Alec and his family lived in bush camps, first in tents and later with the luxury of a caravan. All three children, Jasper, Justin and Lucy, were born in Uganda. His field work in Uganda was published in a number of Geological Survey of Uganda Records and Reports as well as a much cited paper on laterite entitled *The formation of apparent penneplains by a process of combined lateritisation and surface wash* published in *Zeitschrift für Geomorphologie* in 1962.

With Uganda independence looming Alec sought new pastures and accepted a position with the Geological Survey of Western Australia (GSWA) as petrologist, moving to Perth with the family in May 1962. He had little idea that the banded iron-formations (BIFs) of the Hamersley Group were to become a consuming interest for the rest of his geological career. This interest grew out of an investigation into the blue asbestos (crocidolite) occurrence in the BIFs of the group in which he was the lead researcher from 1964. It rapidly became apparent that a study of the origin of the BIFs was an important part of this investigation, particularly as these rocks are the primary source of the iron ore deposits that were being actively explored and developed at that time. This work culminated in GSWA Bulletin 119 *The iron formations of the Precambrian Hamersley Group, Western Australia, with special reference to the associated crocidolite* co-authored with John Blockley.

In pursuing his investigations into BIF Alec made many trips abroad to study similar deposits in South Africa, North America, Europe, India and Brazil. His 1968 paper, *Three great basins of Precambrian banded iron formation deposition: a systematic comparison* (published in the Geological Society of America Bulletin) was a summary of the first study tour. Alec considered that the microbanding in the BIFs were chemical evaporitic varves and in 1969 he applied for and received a Churchill Fellowship that enabled him to further develop a global context for the geology of the BIFs. One of the results from the trip was his 1971 Presidential Address to the Geological Society of Australia entitled *Revolution in earth history*, where 'revolution' referred to the annual journey of the Earth around the Sun—a typical 'trendallism'!

Alec received world-wide recognition for his work on BIFs and was invited to participate in one of the Dahlem Conferences organised by the Freie Universität in Berlin. The proceedings of this 1983 conference were subsequently published with a joint editorship of H D Holland and A F Trendall under the title *Patterns of Change in Earth Evolution*. He contributed to and jointly edited (with R C Morris) a book in Elsevier's Developments in Precambrian Geology series.

Alec recognised that work on the Precambrian rocks of Western Australia depended on accurate geochronological data. He had long been of the opinion that a numerical nomenclature for the Precambrian would enable Precambrian stratigraphy to 'start anew', rather than follow the approach used in the Phanerozoic. He articulated this in his 1966 paper *Towards rationalism in Precambrian stratigraphy* (published in the Journal of the Geological Society of Australia). In 1968 he and John De Laeter [head of Applied Physics at the Western Australian Institute of Technology (WAIT), now Curtin University] established a joint program whereby GSWA supplied the samples and WAIT did the analyses using, initially, the Rb-Sr technique. Well-defined problems were selected and the resulting papers were published mainly in the GSWA Annual Reports. Over the years other techniques were added. One interesting outcome of this work was the dating of the 'oldest rocks' in the Mt Narryer and Jack Hills regions—summarised in De Laeter and Trendall's 2002 paper *The oldest rocks: the Western Australian connection*, published in the Journal of the Royal Society of Western Australia.

Alec was appointed Deputy Director of GSWA in 1970 and was Director from 1980 to 1986. In 1986 he took the unusual decision to step down as Director to become a Principal Geologist and concentrate on geological research. This resulted in GSWA Report 42 *The Woongarra Rhyolite—a giant lavalike felsic sheet in the Hamersley Basin of Western Australia* published in 1995 and GSWA Bulletin 144 *Geology of the Fortescue Group, Pilbara Craton, Western Australia* co-authored with Alan Thorne and published in 2001.

One initiative during his term as director was to produce an updated account of the geology and mineral resources of the State. This was a large task and was uncompleted when Alec retired. However, his successor as Director, Phil Playford, gave Alec the task of overseeing the completion of what became Memoir 3 *Geology and mineral resources of Western Australia*, which was published in 1990 along with a new State geological map.

Alec was active in a number of scientific societies: Secretary of the Western Australian Division of the Geological Society of Australia from 1963 to 1965 and President from 1969 to 1971; Editor of the Journal of the Royal Society of Western Australia from 1965 to 1969 and President from 1973 to 1974; Chair of the Perth Branch of the Australasian Institute of Mining and Metallurgy in 1980 and Chair of the Organising Committee of the Perth Conference in 1979. He was also a Fellow of the Geological Society of London and the Geological Society of America.

After retirement in 1990 he continued his geological work, particularly in geochronology, and was an Adjunct Professor in the Applied Physics Department at Curtin University, continuing his collaboration with John De Laeter. This culminated in the multi-authored *SHRIMP zircon ages constraining the depositional chronology of the Hamersley Group, Western Australia* published in the Australian Journal of Earth Sciences in 2004. He crystallised his ideas on the origin of the continents in a 1996 paper *A tale of two cratons: speculations on the origin of continents* published in the Royal Society of Western Australia's De Laeter Symposium volume.

He was eventually able to return to the place and time that stimulated his interest in geology when he was offered the chance to write an account of Duncan Carse's expeditions to South Georgia. In 2007 he was fortunate to be able to travel to South Georgia to commemorate Duncan Carse's achievements. The changes between his first visit in 1951 and his last in 2007 are implicit in the title of an SBS documentary of the trip: Antarctica—the Great Meltdown. His book was privately published in 2011 under the title *Putting South Georgia on the Map*.

Alec received many honours in recognition of his contributions to geology. He was awarded a DSc for his work on BIFs by the University of London, the Clarke Medal of the Royal Society of New South Wales in 1977 and the Gibb Maitland Medal by the Western Australian Division of the Geological Society of Australia in 1987. Trendall Crag in South Georgia is named after him.

Alec always maintained an interest in languages, including Mandarin Chinese and Russian. He was sufficiently fluent in Russian to be able to deliver a geological paper in that language at an International Symposium in Kiev. An accomplished keyboard player he carried a clavichord (the smallest keyboard he could find, but still not really portable) into the field in Uganda and subsequently built a spinet, a harpischord (his son Justin painted the sound board) and a forte piano from kit sets. I was privileged to hear him play the harpsichord; the beautiful sound from it a tribute to his skill, not only as a player but also as a builder.

In 1995 Alec and Kath moved to Springhaven a property near Denmark on the south coast where they planted fruit trees, oak trees and banksias and ran a small herd of goats. Here he added cheese making to his many interests and I believe perfected a local version of the traditional ash-coated pyramid. Sadly I never tasted his goat cheese.

Truly a man of many talents. We shall not see his like again.

Alec Francis Trendall BSc (Hons) (London), ARCS, PhD (Liverpool), DSc (London), DSc (hc) (Curtin): 8 December 1928—4 April 2013

(Tony Cockbain, based on an auto-obituary started in Albany Hospital on 19 January 2013, supplemented by details from his book 'Putting South Georgia on the map', with assistance from Kathleen and Jasper Trendall, and John Blockley)